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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/506,944
Filing Date: April 28, 2005
Appellant(s): WOBBEN, ALOYS

____
Jared Barrett, Reg. No. 57,933
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed February 2, 2010 appealing from the Office action mailed September 2, 2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Wichert, B, "PV-Diesel Hybrid Energy Systems for Remote Area Power Generation - A Preview of Current Practice and Future Developments" Renewable and Sustainable Energy Reviews, vol. 1, no. 3 (1997), pp. 209-228.

de Zeeuw, W.J. et. al. "On the Components of a Wind Turbine Autonomous Energy System" In Proceedings of the International Conference on Electrical Machines (1984), pp. 193-196.

Lundsager, Per et al. "Main Results from Riso's Wind-Diesel Programme 1984-1990" Riso National Laboratory (December 1991), pp. 22-37.

6,605,880	Jaunich	8-2003
6,175,217	Da Ponte	1-2001
EP 0046530A	Offinga et al	3-1982

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-5, 8-10, 19, 21-23, 26-27, 29, 31 and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wichert (“PV-Diesel Hybrid Energy Systems for Remote Area Power Generation – A Review of Current Practice and Future Developments”), in view of Lundsager (“Main Results from Riso’s Wind-Diesel Programme”), from applicant’s IDS filed 4/2/09, and Da Ponte (US 6,175,217).

Although applicant has amended the claims to change "dc” to "direct current” and “ac" to "alternating current," the original phrasing (dc, ac) is maintained in this Office Action to reduce clutter.

With respect to claim 1, Wichert discloses an isolated electrical network (fig 1 on page 213; page 209, Introduction, lines 1-3) comprising:

at least one first power generator (“wind generator”; page 212, lines 1-3), coupled to a wind turbine to produce electrical power;

at least one intermediate storage device to store electrical power coupled to the first power generator (figs 1-2, “battery bank;” page 222);

a second generator coupled to an internal combustion engine (“diesel engine + alternator”);

a dc bus bar (figures 1-2) to feed electrical power from the first power generator and the intermediate storage device into an ac network (via a bi-directional inverter);

a device (obvious) to detect the electrical power required in the network (pages 218-219); and

a controller (fig 2; unlabeled oval) operable to control electrical power provided by the wind turbine that is delivered to the ac network in response to the required electrical power in the ac network being less than the electrical power generated by the first power generator, control the electrical power provided by the intermediate storage device that is delivered to the ac network in response to the required electrical power in the ac network being greater than the electrical

power generated by the first power generator, and control electrical power provided by the second generator coupled to the internal combustion engine that is delivered to the ac network in response to the detected electrical power required in the ac network being greater than the electrical power generated by the first power generator and provided by the intermediate device (page 218 last paragraph through 219, first paragraph, including footnote 7).

Wichert discloses that the regenerative energy system is always on (page 218, footnote 7). The net load, which is the load to be powered by the electrical intermediate storage device and the combustion engine, is calculated *after* the energy produced by the wind turbine is taken into account. Wichert then discloses that the electrical intermediate storage device is discharged before the engine to minimize the usage of the combustion engines. Wichert discloses the claimed 1-2-3 order of activation.

Furthermore, in order to calculate the net load, it is obvious that Wichert includes a device for detecting the electrical power required in the network. Wichert discloses three types of components (fig 1). There are power generators, storage devices, and loads. Wichert discloses computing the net load required by the power suppliers (generators and discharging storage devices).

Wichert discloses (fig 2-3) at least one embodiment in which a renewable energy source is coupled to a dc bus, an inverter, and an ac load, such that power flow is only unidirectional from the dc bus to the ac bus. Since the art rejection of the claims relies mostly on figure 1 and figures 2-3 do not show a wind turbine, the art rejection will follow

the interpretation that Wichert does not <u>expressly</u> disclose only unidirectional power flow from the dc bus to the ac bus.

Wichert does not expressly disclose:

A. Only unidirectional flow from the DC bus bar to the AC network;

B. A dc device coupled to the dc bus bar to detect electrical power required in the ac network.

A. Lundsager discloses an isolated electrical network (chapter 4; pages 23-36, figure 4.4), comprising: at least a first power generator coupled to a wind turbine (unlabeled in figure; page 32, second paragraph), at least one intermediate storage device ("battery") coupled to the first power generator, a second generator coupled to an internal combustion engine ("diesel engine"), a dc bus bar (unlabeled in figure) to feed the electrical power from the first generator and the intermediate storage device into an ac network (via unlabeled inverter), power flow being only unidirectional from the dc bus bar to the ac network (page 33, section 4.2.2, "system control and supervision", first two paragraphs of the section).

Lundsager shows that power flow is only unidirectional from the dc bus bar (coupled to the wind turbine and the battery) to the ac bus bar (grid). Lundsager discloses that when the wind turbine is off (fourth paragraph of the section), the inverter is switched off, and power created by the internal combustion engine is not passed to the dc bus bar. Thus, Lundsager discloses unidirectional power flow through the inverter (i.e. the inverter does not act as a rectifier).

Wichert and Lundsager are analogous because they are from the same field of endeavor, namely hybrid energy systems. At the time of the invention by applicant, it would have been obvious to a person of ordinary skill in the art to combine the hybrid energy system disclosed in Wichert with the unidirectional power flow disclosed in Lundsager in order to allow the wind turbine to power both a backup battery and an electrical grid network. A wind turbine creates ac power. One skilled in the art would recognize that this ac power can be split into two braches; one is passed directly to a grid and the second converted to dc power to recharge a battery (as shown in Wichert). One skilled in the art would also recognize that the ac power can maintain one branch; where the total amount of ac power is converted to dc power to recharge a battery, and then inverted again to ac power to meet the needs of the electrical grid (as shown in Lundsager).

B. Da Ponte discloses an isolated network (fig 1; col. 3-4) comprising: a wind turbine (10; col. 3, lines 57-62), an intermediate storage device (28; col. 4, lines 54-64), a dc bus bar (VDC; col. 3, lines 62-64), only unidirectional power flow from the dc bus bar to the ac network (fig 1 and 7a, item 14; col. 3, line 64 to col. 4, line 1; col. 9, lines 30-33), a dc device (16; col. 4, lines 26-45) coupled to the dc bus bar to detect the power required in the ac network (col. 5, lines 5-57), and a controller (16) to control the supply of power from the various sources.

Wichert, Lundsager and Da Ponte are analogous because they are from the same field of endeavor, namely hybrid energy systems. At the time of the invention by

applicant, it would have been obvious to a person of ordinary skill in the art to combine the hybrid energy system disclosed in Wichert and Lundsager with dc device and unidirectional flow disclosed in Da Ponte in order to control output power to a variable load from a variable power source (Da Ponte, col. 4, lines 4-15).

As previously discussed, it would also be obvious to one skilled in the art to compute the Wichert net load from any perspective. Specifically, it would be obvious to label all loads as “ac loads” and detect the electrical power required in the network via the dc bus bar. In this embodiment, the ac bus bar and ac load combine to form one equivalent load. A dc device would be able to detect electrical power required by this equivalent load (which represents the ac network) by sensing the dc power drawn through the bi-directional inverter. Similarly, an ac device would be able to detect power required in dc network. This scenario is further demonstrated in the embodiment in which there are no dc loads (fig 1, lower left component). In this embodiment, electrical power from the dc bus bar can be passed only to the battery and the inverter. When the battery is full, all electrical power being drawn from the dc bus bar is delivered directly to the ac network. Thus, one skilled in the art would be able to detect ac power demand through a dc device. Wichert discloses that the network detects load demand. The network would operate in the same manner regardless of the type of device used (dc or ac).

Further, one skilled in the art would recognize that the Wichert dc bus bar and the Wichert ac bus bar can be divided into multiple parts, such that the bus bars do not connect to multiple components. This is possible because Wichert shows that the dc

bus bar and ac bus bar share power via an inverter and a converter. For example, if the ac bus bar were broken into three pieces, then one skilled in the art would recognize the need for three sets of inverters/converters so that the power created by the wind generator could be passed to the ac load (indirectly through the dc bus bar). With the AC load connected to one piece of the ac bus bar, then power would flow from the dc bus bar through the inverter to the AC load. Power would be delivered directly to the dc bus bar from dc sources or indirectly (via a rectifier) from ac sources. But power flow from the dc bus bar to the ac load would be unidirectional.

With respect to claim 2, Lundsager discloses the first power generator includes a synchronous generator (fig 4.4, IG; page 24, last paragraph) and a converter (fig 4.4) with a dc intermediate voltage circuit having at least one first rectifier (AC/DC converter) and an inverter (DC/AC converter). Lundsager discloses that the flower from the wind turbine is rectified to dc, coupled to the battery, and then inverted to ac.

With respect to claim 3, Wichert further discloses at least one electrical element ("battery bank"; page 211, lines 26-28) coupled to a dc voltage intermediate circuit.

With respect to claim 4, Wichert discloses that the electrical element includes at least one selected from a group consisting of a photovoltaic element, a mechanical energy storage device, an electrochemical storage device, a capacitor, and a chemical storage device (fig 2, page 222).

With respect to claims 5 and 10, Da Ponte discloses one of the storage devices can be a flywheel (col. 1, lines 40-41; col. 3, lines 57-62; col. 7, lines 50-53).

With respect to claim 8, Wichert further discloses a boost/buck converter (“battery charger”; page 222) coupled between the electrical element and the dc voltage intermediate circuit.

With respect to claim 9, Wichert discloses charging/discharging circuits (figs 1-4; “battery charger") coupled between the intermediate storage device and the dc voltage intermediate circuit.

With respect to claims 19 and 21-22, Wichert and Da Ponte disclose the apparatus necessary to complete the recited methods, as discussed above in the rejection of claim 1.

With respect to claim 23, Wichert further discloses delivering energy from electrical intermediate storage devices (“battery bank”; page 211, lines 26-28) to overcome frequency instabilities or deviations in the network power frequency from a desired value.

With respect to claim 26, Wichert further discloses wherein in response to the output electrical power of the first power generator being greater than a power of a load required in the ac network, electrical energy of the first generator is supplied to the intermediate storage device if the intermediate storage device is not full charged (page 222, lines 13-15).

With respect to claim 27, Wichert discloses the wind-power station (fig 1, page 218).

With respect claim 29, Wichert discloses the intermediate storage device is at least one of an accumulator block type and a battery storage device (figs 1-2, “battery bank”).

With respect to claim 31, it would be obvious to one skilled in the art to install another generator and internal combustion engine, since it has been held that the mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8 (CCPA 1977).

With respect to claims 34-35, Da Pont discloses at least one intermediate storage device includes a flywheel (col. 3, lines 57-62) or a capacitor (fig 1, item 28; col. 4, lines 54-64).

3. Claims 11-14, 16-17, 25, 28, 30 and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wichert in view of Lundsager, Da Ponte and De Zeeuw (“On the Components of a Wind Turbine Autonomous Energy System”).

With respect to claim 11, Wichert discloses the generators are operable to use renewable energy sources and the intermediate storage device powers a common dc voltage intermediate circuit (fig 1, “dc bus”). The combined teachings of Wichert, Lundsager and Da Ponte do not expressly disclose additional power generators coupled to a renewable energy source. De Zeeuw discloses an isolated electrical network comprising an additional power generator (fig 1, page 193; col. 2, lines 27-31).

Wichert, Lundsager, Da Ponte and De Zeeuw are analogous because they are from the same field of endeavor, namely, hybrid energy systems. At the time of the invention by applicant, it would have been obvious to combine the hybrid energy system

disclosed in Wichert, as modified by the teachings of Lundsager and Da Ponte, with the additional generators disclosed in De Zeeuw in order to guarantee the supply of power by coupling generators to more than one power source.

With respect to claim 12, De Zeeuw discloses a network-commutated inverter (page 193, col. 1, line 44 to col. 2, line 2).

With respect to claim 13, De Zeeuw discloses an electromagnetic coupling ("clutch"), wherein energy to operate the electromagnetic coupling is made available by an electricity storage device and/or by a primary power generator (page 193, col. 2, lines 8-11). It is inherent that the energy for operating the coupling must come from within the isolated system. Although De Zeeuw does not expressly disclose where the power is taken from, it would be obvious to a person of ordinary skill that the wind turbines or the controllable loads would supply the operating power.

With respect to claim 14, De Zeeuw discloses a seawater desalination/service water generation plant connected to the isolated electrical network, wherein the plant generates service water and drinking water in response to the electrical power supplied by the first power generator being greater than power consumption of other electrical loads coupled to the isolated electrical network (page 193, col. 1, lines 1-14). De Zeeuw discloses that the isolated network is designed for supplying electricity to an area where no utility grid exists, and that the network has been used on a coastline. De Zeeuw also provides a discussion on how to prevent salt corrosion on the wind turbine. It would be obvious to a person skilled in the art to use this network in a locale where there are no established sources of electricity or drinkable water. De Zeeuw further

discloses that excess energy may be routed to a controllable load (page 193, col. 2, lines 15-20). Therefor, it would be obvious to supply power generated by the isolated electrical network to a seawater desalination/usable water production plant.

With respect to claim 16, De Zeeuw discloses a synchronous generator (SM2; page 193, col. 2, lines 3-10) operable as a network generator, wherein the synchronous generator operates in a motor mode (page 193, col. 2, lines 11-15, “synchronous compensator”) with energy required from the first power generator.

If the internal combustion engine is turned off or disconnected from the system, the only source of energy is the primary power generator (wind turbines). Therefor, it is inherent that the first power generator would power the synchronous generator in motor mode.

With respect to claim 17, De Zeeuw further discloses the synchronous generator is coupled to the internal combustion engine (fig 1; page 193, col. 2, lines 8-11), and the synchronous generator is deactivated when the electrical power of the primary power generator is greater than or approximately the same as electrical power consumption in the isolated electrical network.

With respect to claim 25, De Zeeuw discloses a synchronous generator to serve as a network generator (SM2; page 193, col. 2, lines 3-10) for a network-commutated inverter (page 193, col. 1, line 44 to col. 2, line 2) to feed an alternating current into the network, the synchronous generator works in motor operation (page 193, col. 2, lines 11-15, “synchronous compensator”) and a drive of the synchronous generator realizable

by providing at least one of energy from a flywheel and electrical energy from a renewable-energy power generator (SM1; page 193, col. 1, lines 15-16).

With respect to claim 28, De Zeeuw discloses the control of the wind-power station (page 193, col. 2, lines 41-46).

With respect to claim 30, Wichert discloses a distributor coupled to the output side of the inverter (fig 4, switch between ac bus and ac load). Wichert discloses controlling the load. The switch controls distribution of power to the load.

With respect to claim 32, De Zeeuw discloses the electromagnetic coupling, as discussed above in the rejection of claim 13.

With respect to claim 33, De Zeeuw discloses using a synchronous generator, as discussed above and Wichert discloses the generator is separated from the isolated electrical network via a switching device (fig 4).

4. Claims 6 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wichert in view of Lundsager, Da Ponte and Jaunich (US 6,605,880).

Wichert, Lundsager and Da Ponte disclose the isolated electrical network according to claim 1, but the references do not combine to expressly disclose a plurality of internal combustion engines, each operable to be coupled to a generator. Jaunich discloses a plurality of secondary generators (col. 3, lines 61-67), where the generators are internal combustion engines (col. 3, lines 46-50).

Wichert, Lundsager, Da Ponte and Jaunich are analogous because they are from the same field of endeavor, namely hybrid energy systems that utilize both a renewable energy source and an internal combustion engine. At the time of the invention by

applicant, it would have been obvious to combine the hybrid energy system disclosed in Wichert, as modified by the teachings of Lundsager and Da Ponte, with the multiple internal combustion engines disclosed in Jaunich in order to increase the power capacity of the isolated electrical network to supply the quantity of power required by the loads.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wichert, in view of Lundsager, Da Ponte and Offringa (EP 046,530 A1).

Wichert, Lundsager and Da Ponte disclose the isolated electrical network according to claim 1, but the references do not combine to expressly disclose a pump storage device is provided, which receives its electrical energy from the primary power generator. Offringa discloses uses variations in a wind turbine's power output to control a pump station, in order to pump water to increased heights (abstract, lines 16-20).

Wichert, Lundsager, Da Ponte and Offringa are analogous because they are from the same field of endeavor, namely hybrid energy systems that utilize both a renewable energy source and an internal combustion engine. At the time of the invention by applicant, it would have been obvious to combine the hybrid energy system disclosed in Wichert, as modified by the teachings of Lundsager and Da Ponte, with having the excess network power supplied to a pump station as disclosed in Offringa in order to apply excess power to a load in order to keep the network power output.

(10) Response to Argument

Appellant’s first argument (Brief, last paragraph of page 10) is directed towards the limitation of a direct current device coupled to the direct current bus bar to detect the electrical power required in the alternating current network.

The Examiner agrees with the appellant that Wichert does not expressly disclose the direct current device. The “device," however, is obvious in view of the reference. Wichert discloses that load demand is sensed (pages 218-221, namely footnote 7 and figures 5-6). A “device” to monitor load demand in Wichert is obvious because without one, the system would not know when to discharge the batteries and when to turn on the generator. As shown in the art rejection above, Wichert discloses the claimed 1-2-3 order of activation (wind turbine-intermediate storage-diesel generator). It is noted that the 1-2-3 order of activation shown in Wichert has not been challenged by the appellant. The issues at hand are whether the Wichert device is: 1) a "dc" device and, 2) used to detect the electrical power required in the ac network.

Regarding the first issue, the art rejection of claim 1 relied upon Da Ponte to show that it would be obvious to locate the device on the dc bus bar. Da Ponte discloses a hybrid power supply. A first source (fig 1, item 10) is a wind turbine (col. 3, lines 57-62) and a second source (item 28) is an intermediate storage device (col. 4, lines 54-64). The Da Ponte wind turbine and intermediate storage device are coupled to a DC bus bar (VDC) which then provides power to an AC network (item 14 is a DC/AC inverter; col. 3, line 64 to col. 4, line 3). The Da Ponte "dc device" is

represented by voltage sensor 18. This limitation analysis has not been challenged by the appellant.

Regarding the second issue, Appellant cites to Da Ponte (Brief, page 11, lines 4-7) where the author discusses the effect of where to place the DC/DC converter. The converter, however, is not germane to the issue of the sensor itself. The limitation being reviewed is detecting AC network power demand. Da Ponte discloses (col. 5, lines 12-20) that during increases in AC load power demand, the DC/DC converter (12) prevents the demand from being supplied immediately by the first source (10). This allows the intermediate storage device (28) to discharge to supply power required by the AC network. Da Ponte states that this will cause the DC bus bar (VDC) voltage potential to fall. When the DC bus bar potential falls, the voltage sensor (18) detects the fall and controls the first source (10) to produce more power (col. 5, lines 21-38).

Therefore, Da Ponte discloses “a dc device” (18) for detecting power required in the “ac network” (14). There are no claimed limitations regarding how the device operates or what parameters it actually detects. Since the Da Ponte dc device detects power required in the load (an AC network), the reference meets the recited limitation.

Appellant also admits “there may be some interdependence between the sensed voltage of sensor 18 and a load on the Da Ponte system" (Brief, page 11, lines 10-13). This interdependence is precisely why the reference meets the limitations of the "dc device." An explicit or inherent disclosure (Brief, page 11, line 11) is <u>not</u> required (although it is demonstrated above), as the art rejection of the claim was presented under the rules of §103.

Appellant next contends that the combination of references is improper (Brief, page 11, second full paragraph). Wichert discloses a device for detecting load demand and uses the demand for controlling the operation of a hybrid power supply. Wichert is silent as to where the load demand is detected. Da Ponte uses a dc device for detecting load demand and then uses that demand for controlling the operation of a wind turbine and a generator. The two references are analogous, and Da Ponte discloses the limitation missing from Wichert regarding where to place the power demand sensor. Thus, the combination of references results in a more complete hybrid power supply and the motivation to combine the references is proper.

Appellant contends that “the common method of detecting demand in an alternating current network is to monitor the frequency of the alternating current network” (Brief, page 11, second paragraph, lines 10-13). Not only is this statement not supported by any documentation, but it is also inaccurate. Da Ponte discloses that it is known to use a dc device to detect the power required in an ac network. Since Da Ponte is available as prior art, its teaching is "a common method."

As discussed above, one skilled in the art would look to Da Ponte to modify Wichert, because Wichert is silent regarding where to place the device that senses load demand (Brief, pages 11-12, bridging sentence).

The art rejection of claim 1 presented an alternative interpretation of Wichert (Brief, first full paragraph of page 12). As discussed above, a “device” is obvious in view of the teachings of Wichert. Where to put that device would be obvious as well. Support for this interpretation can be found in that there are only two (2) bus bars shown

in Wichert (page 213, figure 1). Power is either transferred through a DC bus or an AC bus. Therefore, power demand is measured in either of the two buses. Since there are only two buses, it would be obvious to try locating the device on one bus, then the other, and lastly determine which placement works better. The art rejection of the claim presented the scenario in which there are no DC loads (Final Rejection, page 9, first paragraph). In a scenario with no DC loads, all of the power consumption occurs in the AC load. This is because the PV array, wind generator, and diesel engine are power sources (they create power and do not consume power) and the battery bank only temporarily holds power (does not consume power). If all power is consumed in the AC load (because there is no DC load), then any device that detects the load demand will be, in effect, detecting the power required in the AC network.

Appellant next presents arguments drawn to the limitation of “unidirectional power flow” (Brief, bottom of page 12). Appellant does not appear to contend that Lundsager or Da Ponte disclose unidirectional power flow. Appellant's arguments are directed towards the combination of references. Namely, appellant contends that modifying Wichert with either of Lundsager or Da Ponte “would change the basic principle of operation" of the Wichert system. The Examiner disagrees with this analysis.

Wichert shows at least two embodiments (figures 2-3, pages 219-220) in which a hybrid power supply system is expressed as unidirectional power flow. In figures 2 and 3 power is created by a renewable power source (PV array) and a diesel generator. These devices are coupled to a DC bus bar, to which an intermediate storage device is

attached. The three components then supply power to an AC load via an inverter. Power flow is unidirectional from left to right. This analysis was presented to the appellant in the Final Rejection (page 3, lines 12-17). Appellant has maintained that the argument that the references are not properly combinable without responding to or rebutting this analysis.

Wichert discloses at least one embodiment in which power flow is unidirectional. Therefore, modifying Wichert with the unidirectional power flow disclosed in either Lundsager or Da Ponte will not change Wichert's basic principle of operation.

It is also noted that Wichert's figure 1 can be redrawn to show unidirectional power flow. As shown in the figure, there is an arrow from the AC bus bar to the AC load. This demonstrates that power flow is to the AC load (never from the AC load). It would be possible to redraw figure 1 with the AC bus bar split into three (3) pieces, with each piece capable of bidirectional conversion with the DC bus bar. In this redrawn figure, it would be obvious to one skilled in the art that bidirectional conversion with the AC load is not necessary because power is never received from the AC load. The rectifier could be omitted leaving only the inverter. Since power would only pass from the DC bus to the AC load (never in the other direction), power flow is unidirectional as required by the claim. Redrawing figure 1 is supported by Wichert's figures 2 and 3. Redrawing the physical layout and placement of the hybrid system will not change the electrical operation of that system.

Appellant states that the purpose of placing the device on the dc bus bar is to "recognize a demand for power or an excess supply of power and compensate

accordingly before fluctuations in the network power frequency appear" (Brief, page 3, second paragraph, lines 4-10; emphasis in the original). First, Wichert and Da Ponte both disclose the need to recognize a demand for and excess supply of power. It is because of this recognition that Wichert and Da Ponte are able to control the power sources to deliver power to their island networks. Second, the ability to compensate before fluctuations appear is a benefit of placing the device on the DC bus bar. The benefit is not a claimed limitation. Even if it were, it would be an obvious benefit of any hybrid system with a dc device for sensing AC network power requirements (as shown in Da Ponte). Third, appellant concludes the paragraph by stating that compensating for fluctuations is in direct contract to prior art network testing methods. This statement is not supported by any references or documentation. Da Ponte, which qualifies as a prior art reference, discloses the DC device for detecting power required in the AC network and includes all of the benefits that would be realized by its use. Prima facie obviousness is not rebutted by merely recognizing additional advantages or latent properties present in the prior art. That appellant has discovered a benefit which was not fully realized by Da Ponte is not an inventive step. *In re Wiseman*, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979). MPEP §2145.

Regarding claim 19 (Brief, page 14), appellant does not present any new arguments not previously addressed in the analysis of claim 1.

Regarding the art rejections in view of de Zeeuw (Brief, bottom of page 14), Jaunich (Brief, page 15) and Offringa (Brief, page 15), appellant does not present any

arguments regarding the dependent claims, except to reference the arguments presented with claim 1.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Adi Amrany

/Adi Amrany/

Examiner, Art Unit 2836

/Jared J. Fureman/

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